

## REMARKS

The Office action mailed 29 January 2008, has been received and its contents carefully noted. Claims 29-36 and 39 were pending, claims 31-34 and 36 were withdrawn from consideration, and claims 29, 30, 35 and 39 were rejected. Reconsideration in view of the following is respectfully requested.

### Rejection under 35 U.S.C. 102(b)

The Examiner rejected claims 29 and 35 under 35 U.S.C. 102(b) as being anticipated by Doretti et al. Specifically, the Examiner noted that Doretti et al. teaches a biosensor which measures substrates by using cholinesterases immobilized on a membrane.

Applicants respectfully submit that the device of Doretti et al. does not teach or suggest the claimed invention. Specifically, Doretti et al. does not disclose a device which is even capable of measuring a protein or a plurality of proteins in a sample. It appears that the Examiner does not appreciate the difference between a protein, such as a cholinesterase, and a substrate for the protein/cholinesterase, such as acetylcholine. The substrate is NOT a protein. In Doretti et al., the protein is used to measure the amount of substrate in a sample. In Doretti et al., the protein is a cholinesterase which is immobilized on a membrane. In Doretti et al., the immobilized protein is in a given (fixed) amount. It is impossible to use the device of Doretti et al. to measure the amount of a protein, such as a cholinesterase, in a sample. The reason it is impossible to use the device of Doretti et al. to measure a protein in a sample is because the immobilized protein used to do the measuring does not specifically bind or react with another protein, such as another cholinesterase.

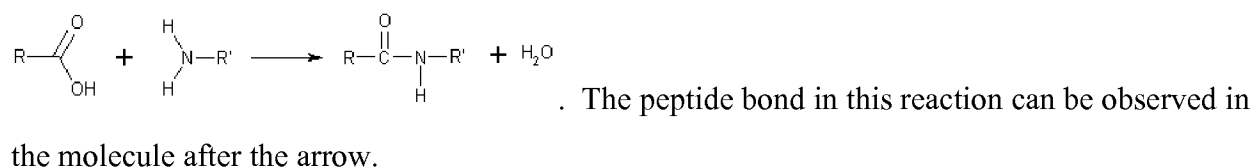
Since it seems that the Examiner does not appreciate the difference between a protein, such as cholinesterase, and a substrate, such as acetylcholine, Applicants submit the following examples and definitions of cholinesterase and acetylcholine:

Acetylcholine is a chemical compound which is a neurotransmitter. Acetylcholine is an ester of acetic acid and choline having the chemical formula  $\text{CH}_3\text{COOCH}_2\text{CH}_2\text{N}^+(\text{CH}_3)_3$ .

Acetylcholine has the structural formula .

A protein is made up of amino acids which are joined together by peptide bonds. An

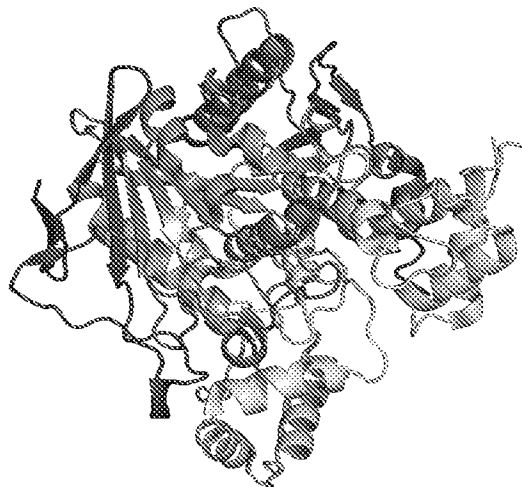
amino acid is a molecule which has an amine and a carboxyl functional group. A peptide bond is CO-NH bond which occurs when the carboxyl group of one amino acid reacts with the amino group of another amino acid which is known as a dehydration synthesis reaction as follows:



A cholinesterase is a protein that catalyzes the hydrolysis of acetylcholine into choline and acetic acid. Acetylcholinesterase and butyrylcholinesterase are proteins containing a very large number of amino acids that are linked together with peptide bond and have the following 3D protein structures, respectively, available from the Protein Data Bank (PDB):



and



Clearly, a choline such as acetylcholine does not have a peptide bond and is not made up of more than one amino acid. Thus, a choline is not a protein. Thus, the cholines (acetyl-, acetylthio-, butyryl- and butyrylthiocholine) listed in Doretto et al. are not proteins. Instead, the cholines in Doretto et al. are the substrates being measured by the biosensor of Doretto et al. The biosensor of Doretto et al. requires that a cholinesterase/protein is co-immobilized with choline oxidase (another protein) on a membrane. When a substrate, e.g. a choline, binds the cholinesterase/protein immobilized on the membrane, the choline oxidase produces a signal. The biosensor of Doretto et al. is incapable of measuring the amount of a protein such as a cholinesterase in a sample because the a cholinesterase/protein will not bind to another cholinesterase/protein immobilized on the membrane to result in the choline oxidase producing a

signal.

Since the biosensor of Dorette et al. is incapable of measuring a protein or a plurality of proteins in a sample, Dorette et al. does not anticipate the claimed invention. Therefore, the rejection under 35 U.S.C. 102(b) should properly be withdrawn.

*Should the Examiner maintain the assertion that the biosensor of Dorette et al. anticipates the claimed invention, Applicants respectfully submit that the Examiner mischaracterizes the disclosure of Dorette et al. and/or erroneously substitutes the substrates being measured as proteins. Thus, Applicants again respectfully request that the Examiner enter in the record an Official Notice indicating that the U.S. Patent & Trademark Office holds that a substrate for a protein is the same as the protein itself.*

#### **Rejection under 35 U.S.C. 103(a)**

The Examiner rejected claims 29, 30, 35, and 39 under 35 U.S.C. 103(a) as being unpatentable over Dorette et al. in view of Magnotti et al. and further in view of Ellman et al. Specifically, the Examiner deemed that it would have been obvious “to develop a handheld device with a biosensor (as taught by Dorette et al.) and a cartridge ... to monitor enzyme activity because Dorette et al. teach a biosensor to detect enzyme activity ...” (emphasis added).

Applicants respectfully submit that the cited art, alone or in combination, do not teach or suggest the claimed invention. Specifically, as explained above, the biosensor of Dorette et al. is incapable of detecting an enzyme/protein. Instead, the device of Dorette et al. discloses detecting cholines which are not proteins. Thus, as previously submitted, the combination of Dorette et al., Magnotti et al., and Ellman et al. does not result in the claimed invention. Therefore, a prima facie case of obviousness has not been established and the rejection under 35 U.S.C. 103(a) must properly be withdrawn.

#### **Request for Rejoinder**

Applicants respectfully request rejoinder of the withdrawn claims which ultimately depend on claim 29.

### **Request for Interview**

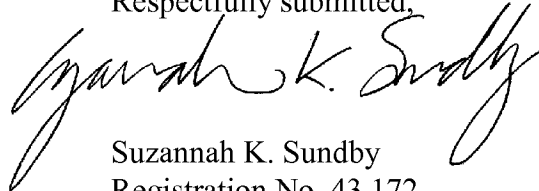
Either a telephonic or an in-person interview is respectfully requested should there be any remaining issues.

### **CONCLUSION**

All of the stated grounds of objection and rejection have been properly traversed, accommodated, or rendered moot. Therefore, it is respectfully requested that the Examiner reconsider all presently outstanding objections and rejections and that they be withdrawn. It is believed that a full and complete response has been made to the outstanding Office Action and, as such, the present application is in condition for allowance. If the Examiner believes, for any reason, that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at the number provided.

It is not believed that extensions of time are required, beyond those that may otherwise be provided for in accompanying documents. However, in the event that additional extensions of time are necessary to prevent abandonment of this application, then such extensions of time are hereby petitioned under 37 C.F.R. 1.136(a), and any fees required therefor are hereby authorized to be charged to **Deposit Account No. 210-380**, Attorney Docket No. **034047.003DIV1 (WRAIR 00-23)**.

Respectfully submitted,



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